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10/754,597	01/12/2004	Yoshifumi Takeyama	03560.003426	8030

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EXAMINER	
HALL, ASHA J	

ART UNIT	PAPER NUMBER
1795	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/754,597	TAKEYAMA ET AL.	
	Examiner	Art Unit	
	Asha Hall	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *November 2, 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3, and 5-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Shiotsuka et al. (6,175,075).

In regard to claim 1, Shiotsuka et al. discloses photovoltaic cell comprising:

- a photovoltaic element (col.1; lines:14-22) ;
- a coating film (406b) provided on the photovoltaic element as shown in Figure 4, wherein the photovoltaic element has an electrode portion/collecting electrode metallic wire (406a) having a thickness larger than the average thickness of the coating film (col.15; lines: 1-9)
- a thickness of a part of the coating film (406b) which is deposited by paste (it is well known to those skilled in the art that by applying a paste renders an non uniform thickness especially applied to a round object, wherein –if accomplished by another conventional technique such as sputtering would yield a more uniform thickness coating), which is in contact with the electrode portion/collecting electrode metallic wire (406a) is small or larger (non uniform especially to the portion that comes in

contact to the adjacent layer) to the average thickness of the coating film (col.14: lines: 57-68 & col.15; lines: 1-9).

With respect to claim 3, Shiotsuka et al. discloses photovoltaic cell as applied to claim 1, wherein the average thickness of the coating film is 0.001-0.05mm (col.14: lines: 57-68 & col.15; lines: 1-9).

In regard to claims 5 and 6, Shiotsuka et al. discloses the photovoltaic cell according to claim 1, wherein the coating film comprises a coating material (406b), and the electrode portion comprises an insulating member (405) and a conductive/metal foil body (408) (col. 10; lines: 11-14 & col. 13; lines: 5-6). Shiotsuka et al. also discloses wherein the insulating member (405) comprises an acrylic resin adhesive layer (col.14; lines: 29-33).

With respect to claim 7, Shiotsuka et al. discloses the photovoltaic cell as applied to claim 5 above, wherein a part of the insulating member (405) as shown in Figure 4 located at a position higher (on the sides; surrounding electrode portion (406)) than the average thickness of the coating film has a low wettability of 45 dyne/cm (col.18; lines: 59-61) to the coating material (406b).

With respect to claims 8 and 9, Shiotsuka et al. discloses the photovoltaic cell as applied to claim 7 above, wherein a side surface (Figure 4) of the insulating member (405) comprises an agent/organic peroxide (col.5; lines: 29-31) causing the side surface of the insulating member to have a low wettability of 45 dyne/cm (col.18; lines: 59-61) to the coating material (406b), the side surface of the insulating member (405) being located at a side of the electrode portion (406) which is in contact with the coating film

as shown in Figure 4. Shiotsuka also discloses wherein the insulator includes base plate/reinforcement member is comprised of a crosslinking agent of organic peroxide (col.7; lines: 21-22 & col. 19; lines: 23-34).

With respect to claim 10, Shiotsuka et al. discloses method for manufacturing a photovoltaic cell having a photovoltaic element and a coating film provided on the photovoltaic element (col.2; lines: 60-67), comprising:

- a step of forming the coating film on a light receiving face of the photovoltaic element by applying the coating film thereon (col.11; lines: 36-44); and
- a step of heating the coating film for curing/thermocompression bonding treatment (col.19; lines: 61-62) while a part thereof in contact with a thickness of a part of the coating film (406b) which is deposited by paste (it is well known to those skilled in the art that by applying a paste renders an non uniform thickness especially applied to a round object, wherein –if accomplished by another conventional technique such as sputtering would yield a more uniform thickness coating), which is in contact with the electrode portion/collecting electrode metallic wire (406a) is small or larger (non uniform especially to the portion that comes in contact to the adjacent layer) the average thickness of the coating film (col.14: lines: 57-68 & col.15; lines: 1-9).

In regard to claim 11, Shiotsuka et al. discloses a method for manufacturing a photovoltaic cell (col.2; lines: 60-67) as applied to claim 10, further comprising a step of coating a side surface of an insulating member (405) of the electrode portion (406) with

an agent/organic peroxide (col.5; lines: 29-31) which causes the side surface of the insulating member to have a low wettability of 45 dyne/cm (col.18; lines: 59-61) to a coating material/resin contained in the coating film (406b) as shown in Figure 4, wherein the side surface of the insulating member(405) is located at a side of the electrode portion(406) which is brought into contact with the coating film(406b).

With respect to claim 12, Shiotsuka et al. discloses a method for manufacturing a photovoltaic cell as applied to claim 11 above, wherein the agent is a release agent contained in a mixed solution at a concentration of 0.1 to 30 % (col.17; lines: 44-50).

In regard to claim 13, Shiotsuka et al. discloses a method for manufacturing a photovoltaic cell as applied to Claim 10 above,

- further comprising a step of forming an insulating member (405) of the electrode portion (406) by slitting a tape comprising a base plate (409) (col.15; lines: 32-36),
- wherein the base plate (409) and a side surface of the insulating member comprise an agent is comprised of a crosslinking agent of organic peroxide (col.7; lines: 21-22 & col. 19; lines: 23-34) which causes the side surface of the insulating member to have a low wettability ~ 45 dyne/cm (col.18;lines:59-61) to a coating material contained in the coating film (406b), and
- wherein the side surface of the insulating member(405) is located at a side of the electrode portion(406), which is brought into contact with the coating film(406b).

With respect to claim 14, Shiotsuka et al. discloses a photovoltaic cell having a photovoltaic element and a coating film provided on the photovoltaic element (col.2; lines: 60-67), comprising:

- a photovoltaic element (col.1; lines:14-22) ;
- a coating film (406b) provided on the photovoltaic element as shown in Figure 4, wherein the photovoltaic element has an electrode portion/collecting electrode metallic wire (406a) having a thickness larger than the average thickness of the coating film (col.15; lines: 1-9)
- a part thereof in contact with a thickness of a part of the coating film (406b) which is deposited by paste (it is well known to those skilled in the art that by applying a paste renders an non uniform thickness especially applied to a round object, wherein –if accomplished by another conventional technique such as sputtering would yield a more uniform thickness coating), which is in contact with the electrode portion/collecting electrode metallic wire (406a) is small or larger (non uniform especially to the portion that comes in contact to the adjacent layer) the average thickness of the coating film (col.14: lines: 57-68 & col.15; lines: 1-9).
- as shown in Figure 2 AB, the electrode portion (201') is provided outside of a power generation region (201) of the photovoltaic element (col. 1; lines: 15-21),
- the photovoltaic element has collector electrodes (203) on the power generation region (col. 1; lines: 24-25), and
- as shown in Figure 1B, the entire solar cell module (121) is enclosed with protective coating film/ETFE film (122) (col. 25; lines: 5-12) that

covers/encapsulates the solar cell module including both the power generation region and the collector electrodes.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shiotsuka et al. (6,175,075) in view of Nakamura (6,291,763).

With respect to claim 2, Shiotsuka et al. discloses photovoltaic cell (col.1; lines: 14-22) as applied to claim 1 above, disclose that the coating film comprises a thermosetting coating material (406b)/resin(col. 14; lines: 65-67) (wherein thermosets is a distinct property of resins), but fails to discloses the thermosetting coating material before curing has a viscosity in the range of from 1 to 50 mPa*s.

Nakamura discloses a photoelectric conversion device and photocell (col. 1; lines: 5-8) and further discloses coating material with a viscosity of 1 mPa*s (col. 7; lines; 6-8). Nakamura teaches that the liquid viscosity is largely dependent on the kind and dispersibility of the semiconductor particles, the solvent, additives, and a binder in order to form a uniform film extrusion coating or casting (col. 7; lines: 4-9). It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate

a liquid viscosity of 1 mPa*s for the coating material as taught by Nakamura to the photovoltaic cell of Shiotsuka et al. in order to form a uniform film coating.

In regard to claim 4, Shiotsuka et al. discloses the photovoltaic cell as applied to claim 1, and further discloses a coating film (406b), but fails to disclose wherein the coating film comprises an acrylic resin.

Nakamura discloses a photoelectric conversion device and photocell (col. 1; lines: 5-8) and further discloses coating/sealing material composed of an acrylic resin in accordance with the purposes such as improvement on weatherability, electrical insulation, improvement on light collection efficiency, protection of cells and the like (col. 31; lines: 22-29). It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate an acrylic resin as the coating material as taught by Nakamura to the photovoltaic cell of Shiotsuka et al. in order to improve upon the electrical properties, light collection efficiency and the protection of the cells.

Response to Arguments

Claim Rejections - 35 USC § 102

All arguments directed toward the amended claim 1 and all its dependants require new grounds of rejection as presented above.

With respect to claim 1, the Applicant argues that neither Shiotsuka nor Nakamura is seen to disclose or suggest at least that a thickness of a part of the coating

film which is in contact with the electrode portion is smaller than the average thickness of the coating film.

The Examiner respectfully disagrees. Shiotsuka discloses a thickness of a part of the coating film (406b) which is deposited by paste. It is well known to those skilled in the art that by applying a paste renders an non uniform thickness especially applied to a round object, wherein –if accomplished by another conventional technique such as sputtering would yield a more uniform thickness coating), which is in contact with the electrode portion/collecting electrode metallic wire (406a) is small or larger (non uniform especially to the portion that comes in contact to the adjacent layer.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Asha Hall whose telephone number is 571-272-9812. The examiner can normally be reached on Monday-Thursday 8:30-7:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on 571-272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AJH

Alexa Neckel

ALEXA D. NECKEL
SUPERVISORY PATENT EXAMINER